

ERT Document PE317-600



931638

**DRIFT-PLATTEVILLE AQUIFER
NORTHERN AREA REMEDIAL INVESTIGATION PLAN
FOR THE REILLY TAR & CHEMICAL CORPORATION
N.P.L. SITE, ST. LOUIS PARK, MINNESOTA**

November 3, 1986

Prepared for:

**The City of St. Louis Park
St. Louis Park, Minnesota 55416**

**ERT - A RESOURCE ENGINEERING COMPANY
5871 Cedar Lake Road, St. Louis Park, Minnesota 55416**

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Section B	Quality Assurance Project Plan
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SECTION A
SITE MANAGEMENT PLAN



Background

Section 9.3 of the Remedial Action Plan (RAP) outlines the requirements for a Remedial Investigation (RI) for the Northern Area of the Drift-Platteville Aquifer. The Northern Area is bounded by West 32nd Street to the north, Alabama Avenue to the east, Highway 7 to the south, and Louisiana Avenue to the west (Figure 1). The RAP requires six new monitoring wells and the collection of water quality samples from the new wells and existing wells to determine the nature and extent of contamination in the Northern Area of the Drift-Platteville Aquifer. This Remedial Investigation Plan specifies the location and design of the six new monitoring wells. The Drift-Platteville Aquifer monitoring wells will be sampled twice for analysis of PAH and phenolic compounds (including water level measurements) and a report summarizing the results of the Remedial Investigation will be prepared.

Agencies request expanded analysis - 1st one
Follow US EPA R2/FS guidelines

NON-RESPONSIVE

Well Locations

Figure 1 shows the proposed locations for the six new monitoring wells and the locations of existing Drift-Platteville Aquifer monitoring wells that will be monitored concurrently with this investigation. The six new monitoring wells will consist of three wells completed in the Drift Aquifer and three wells completed in the Platteville Aquifer. Figure 1 indicates one Drift Aquifer monitoring well and one Platteville Aquifer monitoring well at each of three locations. These three locations, combined with the location of existing monitoring wells W131 and W136, provide a good aerial coverage of the northern area of the Drift-Platteville Aquifer.

just by using tables - figure

The six new monitoring wells and well PB140 will be designated using the USGS well numbering system upon concurrence of all Project Leaders. The wells will be located in St. Louis Park, and the City will acquire necessary access agreements in those instances where others own the site where the monitoring wells will be located.

Well Design and Installation

The design for the six new Drift-Platteville Aquifer monitoring wells is consistent with the design for existing monitoring wells in this aquifer. A licensed well driller will be contracted to install the monitoring wells in accordance with the Minnesota Department of Health Water Well Construction Code. The wells will be completed within 60 days of receiving approval of this plan.

well codes

Figure 2 shows the well design that will be used for Drift and Platteville Aquifer monitoring wells. Four-inch diameter steel casing will be used for each monitoring well, with open-hole completion through the Platteville Aquifer. Screens used for the Drift Aquifer monitoring wells will be of stainless steel construction, and will be 5 to 10 feet long based upon observations of the City's field representative. At each location the Platteville Aquifer monitoring well will be drilled first. The geologic information gained during that installation will be used to guide the placement of the screened interval for the adjacent Drift Aquifer monitoring well. The Drift Aquifer monitoring wells will be screened in a coarse sandy zone of the Middle Drift Aquifer. Well heads will consist of the 4-inch casing extending approximately two feet above the ground surface. A hinged, lockable, steel cover will be used to cap the 4-inch casing. The casing will be painted and marked with the well's project number, and regular inspections will be made to minimize vandalism.

u/ field approval by the agency.

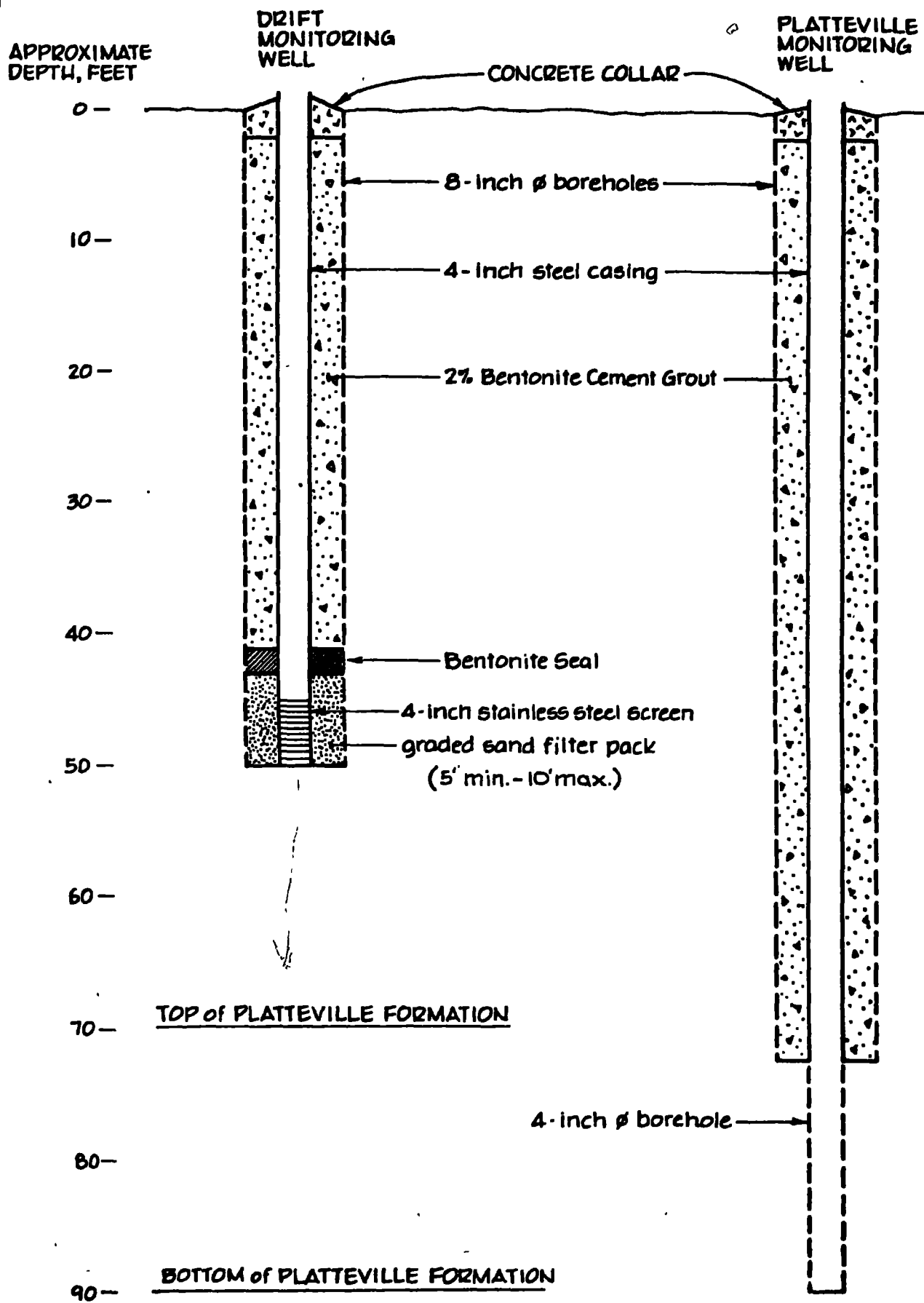
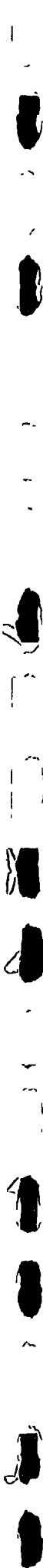


Figure 2. Conceptual Design of Monitoring Wells



The licensed well contractor will use direct rotary drilling techniques to advance 8-inch diameter boreholes. For Platteville Aquifer monitoring wells, the 4-inch casing will be set within the upper five feet of the Platteville Formation, and will be grouted from the inside out. Additional grout will be placed via tremie pipe, if required. A 4-inch diameter open hole will then be drilled through the Platteville Aquifer. For Drift Aquifer wells, 4-inch diameter, stainless steel screens will be welded onto the bottom of the casing and inserted into the completed borehole. A filter pack of graded coarse sand will be installed around the screen to two feet above the screen. A two-foot thick bentonite seal will then be added and the remainder of the hole will be grouted and sealed at the surface with a cement collar. All grout and other well construction materials will conform with the requirements of the Minnesota Water Well Construction Code ~~and will be left to the discretion of the well contractor.~~ Upon completion, the wells will be developed using appropriate industry methods as directed by the City's field representative. Disinfectants will not be used, as they may interfere with subsequent water quality analyses.

as
mix of grout
bentonite

state of ft

The drilling sites will be kept neat and clean at all times. Drilling fluids, cuttings, and other debris will be containerized ~~and hauled off-site by the well contractor for disposal as clean fill.~~

specify

Drilling tools and equipment will be cleaned between wells. A record containing documentation of these procedures and field notes, field measurements, well logs, etc. will be maintained.

Sampling and Analysis

Within 30 days of completing the new monitoring well installations, ground-water samples will be collected for ~~PAT and phenolics analyses.~~ ^{expanded list} A second round of monitoring will be conducted within six months of the first monitoring round. ^{for PAT & phenolic analyses.} All sampling and analysis will be done in accordance with the approved sampling plan, as stipulated in Section 3.2 of the RAP. A survey to determine the horizontal position of each well and vertical elevation of the measuring points will be conducted before water level measurements are made.

using what

Remedial Investigation Report

Within 90 days of completing the second monitoring round described above, a report summarizing the results of the Remedial Investigation will be prepared.

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SECTION B

QUALITY ASSURANCE PROJECT PLAN

CONTROLLING AND COORDINATION AND INVESTIGATION
APPENDIX BEL 201 NO. 1-30

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QUALITY ASSURANCE PROJECT PLAN

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1.0 INTRODUCTION

1.1 Background

ERT and the City of St. Louis Park will complete certain tasks in fulfillment of the Consent Decree and Remedial Action Plan for the St. Louis Park Site. This Quality Assurance^P Plan pertains to all work to be performed by ERT and other contractors to install six new groundwater monitoring wells in the Drift-Platteville Aquifer. Further details on the work to be performed, its purpose and the methodology to be employed may be found in the Site Management Plan.

1.2 Quality Objectives

The purpose of this Quality Assurance^P Plan is to define the Quality Assurance and Quality Control provisions to be implemented to ensure that:

- The new monitoring wells will conform to design and location specifications given in the Site Management Plan.
- The work is performed in an efficient manner.
- Field records generated during the course of the field work are complete and accurate.

0

2.0 PROJECT ORGANIZATION AND RESPONSIBILITIES

The project organization is illustrated in Figure 2-1. The Project Manager, Mr. William Gregg will oversee and coordinate all project activities, schedule and direct all field activities and will conduct correspondence with St. Louis Park. The Project Manager/Field Coordinator is also responsible for maintaining records of the work performed on the project and for archiving those records in the Central File upon completion of the work. The Project Quality Assurance Officer is responsible for ensuring that this plan is implemented and that project data undergo technical and peer review, as necessary. The drilling and well installation contractor will perform all work necessary to install the new monitoring wells.

3.0 QA/QC - FIELD ACTIVITIES

3.1 Training

All field personnel working on the Drift-Platteville Aquifer Northern Area Remedial Investigation (including subcontractors) will receive training on the purpose of the work, the procedures to be employed and the Project Health and Safety Plan.

3.2 Subcontractor Quality Control

Subcontractor quality control is that system of activities which ensures that products or services obtained from subcontractors fulfill the needs of the project.

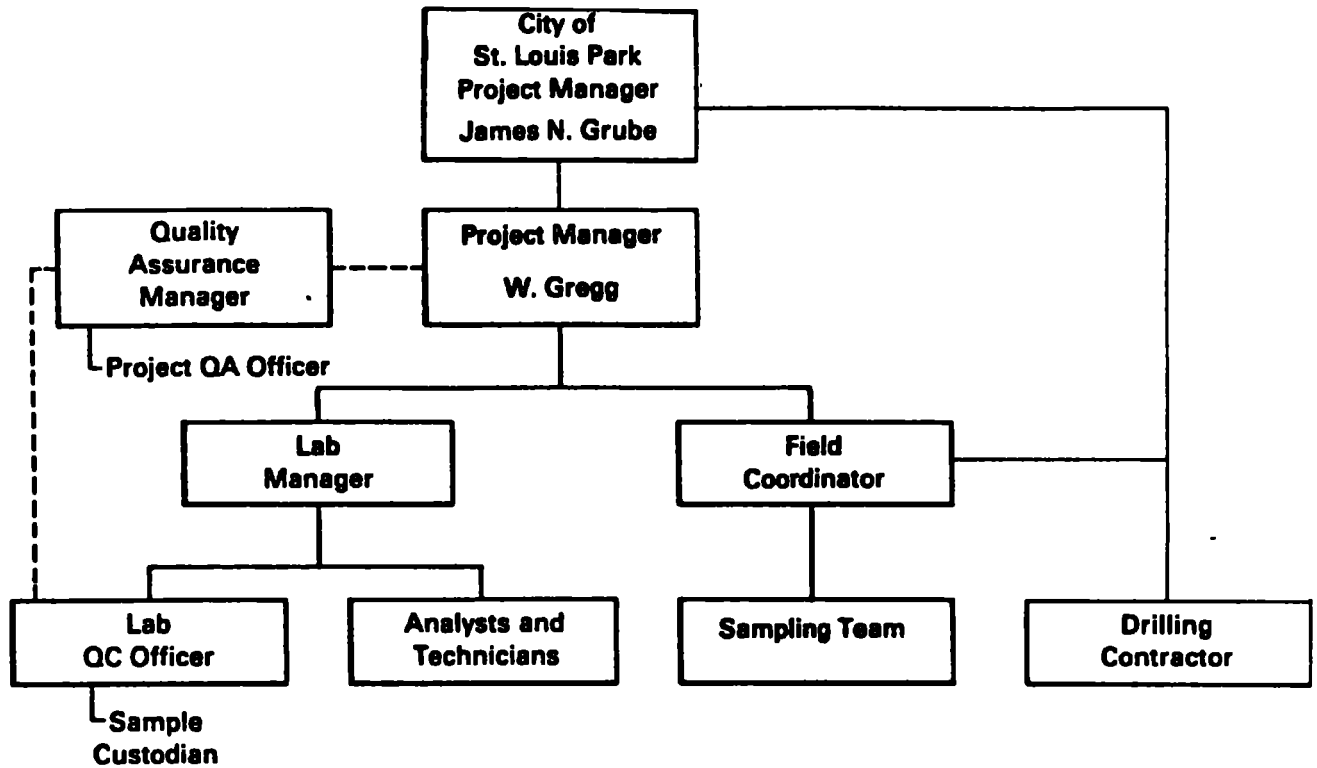


Figure 1-1 Project Quality Assurance Organization

Periodic quality control inspections of each contractor will be performed by the ERT Project Manager/Field Coordinator to evaluate adherence to the project QA Plan and the project Health and Safety Plan. Inspection will include (as appropriate):

- o Type and condition of equipment,
- o Calibration procedures,
- o Personnel qualifications,
- o Decontamination procedures,
- o Documentation.

Results of the inspection will be entered in the field notebook.

3.3 Document Control and Recordkeeping

Document Control for the remedial investigation serves a two-fold purpose. It is a formal system of activities that ensures that:

- 1) All participants in the project are promptly informed of revisions of the Quality Assurance Plan; and
- 2) All critical documents generated during the course of the work are accounted for during, and at the end of the project.

This QA Plan and all Standard Operating Procedure documents have the following information on each page:

QUALITY ASSURANCE PROJECT PLAN

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- o Document Number**
- o Page Number**
- o Total number of pages in document**
- o Revision number**
- o Revision date**

When any of these documents are revised, the affected pages are reissued to all personnel listed as document holders with updated revision numbers and dates. Issuance of revisions is accompanied by explicit instructions as to which documents or portions of documents have become obsolete.

Control of, and accounting for documents generated during the course of the project is achieved by assigning the responsibility for document issuance and archiving. For the Drift-Platteville Aquifer Northern Area Remedial Investigation, the ERT Project Manager/Field Coordinator has this responsibility.

Documentation for the project will either be recorded in non-erasable ink, or will be photocopied promptly upon completion, and the photocopies dated. All documents will be signed by the person completing them.

4.0 NUMERICAL ANALYSIS AND PEER REVIEW

All numerical analyses, including manual calculations, mapping, and computer modeling will be documented and

subjected to quality control review in accordance with ERT SOP 2005, Numerical Analysis and Peer Review. All records of numerical analyses will be legible, reproduction-quality and complete enough to permit logical reconstruction by a qualified individual other than the originator.

5.0 AUDITS AND CORRECTIVE ACTION

ERT conducts periodic audits to assess the level of adherence to QA policies, procedures and plans.

Whenever quality deficiencies are observed that warrant immediate attention, formal corrective action request forms are issued to the project manager by the Quality Assurance Department. The QA Department retains one copy of the form when it is issued. The project manager completes the form and signs it when corrective action has been implemented, and returns the original to the QA Officer to close the loop.

The Quality Assurance Department maintains a record of all corrective action requests and reports their status to ERT management in a quarterly report.

Should an audit be conducted on the Drift-Platteville Aquifer Northern Area Remedial Investigation work, St. Louis Park will be apprised of the audit findings and of any corrective action that is requested and performed.

APPENDIX
ERT SOP No. 7220
MONITORING WELL CONSTRUCTION AND INSTALLATION

ERT STANDARD OPERATING PROCEDURE

Number: 7220

Date of Issue: 1st Quarter, 1984

Title: Monitoring Well Construction

Organizational Acceptance

	Authorization	Date
Originator	<u>Charles S. P. [Signature]</u>	<u>3/2/84</u>
Department Manager	<u>Robert A. [Signature]</u>	<u>3/2/84</u>
Divisional Manager	<u>[Signature]</u>	<u>3-2-84</u>
Group Quality Assurance Officer	<u>[Signature]</u>	<u>3/2/84</u>
Other		

Revisions	Changes	Authorization	Date
1	Update	<u>S.P.</u> <u>CEM</u> <u>ACL</u> <u>EM</u>	<u>3-2-84</u> <u>3-2-84</u> <u>3/2/84</u> <u>3-2-84</u>

STANDARD OPERATING PROCEDURE

Title: Monitoring-Well Construction and Installation

Date: 1st Qtr 198.

Number: 7220

Revision: 1

1.0 Purpose and Applicability

This SOP establishes the method for installing observation standpipes, or monitoring wells. These wells will be installed to: determine the depth to ground water, monitor ground-water fluctuations and obtain samples of ground water for laboratory testing.

2.0 Responsibilities

It is the responsibility of the project geologist/engineer to directly supervise the construction and installation of each monitoring well by the contract driller to ensure that the well-installation specifications are adhered to and to record all pertinent data on the approved forms.

3.0 Supporting Materials

The monitoring well shall consist of a commercially available well screen constructed of brass, stainless steel or slotted PVC plastic pipe of minimum 2-inch nominal ID (inside diameter). The length of the screened area and the gage of the screen or slots shall be determined by the inspecting geologist depending upon the grain-size distribution of the soils. Blank plastic, black, galvanized or stainless steel pipe of minimum 2-inch ID shall be used to complete the standpipe approximately 2 feet above the existing grade. The riser pipe shall be connected by flush, threaded joints. No solvent or anti-sieze compound shall be used on the joints.

The section of riser pipe that sticks up above ground shall be protected by 3 or 4-inch diameter steel guard pipe, up to 5 feet long set 2 feet into the concrete surface seal. The top of the guard pipe shall have a vented lockable cap.

Other materials used for well construction include silica sand, bentonite, cement, and a calibrated tape for length measurements and water-level measurements. Construction materials are generally provided by the drilling subcontractor.

4.0 Procedure for Construction

- 4.1 After drilling and soil sampling has been completed, the casing shall be flushed free of cuttings to develop a clean, uniform hole. Flushing shall be continued until the return water is clear.
- 4.2 Grouting of the borehole to the well-screen tip elevation shall be required if the tip is to be above the bottom of the borehole. A heavy plumb bob on a calibrated tape shall be used to determine the depth of the boring and the depth to the top of the grout plug.

0830J

ENVIRONMENTAL RESEARCH & TECHNOLOGY, INC. 696 VIRGINIA ROAD, CONCORD, MASSACHUSETTS 01742

STANDARD OPERATING PROCEDURE

Page 2 of 4

Title: Monitoring-Well Construction and Installation

Date: 1st Qtr 198-
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- 4.3 The well screen and riser pipe shall then be assembled. The assembled screen and riser or its constituent parts shall be decontaminated as described in SOP 7600, Decontamination.
- 4.4 The rise and screen shall be carefully placed in the borehole to ensure that it is centered in the hole.
- 4.5 The annular space surrounding the screened section of the monitoring well and at least two feet above the top of the screen shall be filled with clean, medium to coarse sand.
- 4.6 After the sand filter has been emplaced, the monitoring well shall be filled approximately 2 to 3 feet above the existing water table with clear water and the drop in water level observed to ensure that the monitoring well is functioning. If the water level does not drop at a rate consistent with the soil type at the tip, the monitoring well shall be removed and the borehole washed before the monitoring well is reinstalled.
- 4.7 It may be necessary to seal off the well screen by placing a grout seal on top of the sand at a specified depth. The project geologist/engineer, or shall give detailed instructions if sealing off of the well screen is required. This grouting may consist of a bentonite seal of approximately 3 feet in thickness to prevent vertical flow within the boring from affecting the screened area.
- 4.8 The remaining length of borehole shall be backfilled with sand or grout to within 2 feet of the ground surface. This grouting may consist of a bentonite/cement mixture made to required specification.
- 4.9 The 3- or 4-inch diameter steel guard-pipe shall be placed around the riser, and the borehole around the guard pipe shall be dug out to approximately a 1-foot radius to a depth of 2 feet, and filled with concrete. All completed wells will have identification numbers clearly painted on the cap and guard pipe with bright colored paint.

5.0 Documentation Procedures

- 5.1 During installation of each monitoring well a series of measurements shall be taken and documented. These measurements shall include:

length of screen

length of riser pipe

total length of well

depth to stabilized water level

STANDARD OPERATING PROCEDURE

Page 3 of 4

Title: Monitoring-Well Construction and Installation

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Other data include type and length of casing, diameters of the respective components, thicknesses and different types of grouting materials, and elevation of the top of the guard pipe and ground surface after surveying is complete.

- 5.2 All data shall be recorded on site onto the ground-water monitoring well installation report and all wells shall be referenced onto the appropriate site map. A field book and/or boring log can be used as other means of recording data. All documentation shall remain in the project files indefinitely.

GROUND WATER STANDPIPE INSTALLATION REPORT

STANDPIPE No _____

BORING No _____

SH. _____ C- _____

PROJECT _____ SITE _____ DATE: START _____ FINISH _____

LOCATION _____ GROUND ELEV. _____ TOTAL DEPTH (FT.) _____

CONTRACTOR _____ LOGGED BY _____ CHK'D BY _____

LOG OF MATERIALS	SURVEY DATUM _____	ELEVATION OR STICKUP ABOVE/BELOW GROUND SURFACE OF CASING OR ROAD-WAY BOX _____
	GROUND ELEVATION _____	ELEVATION OR STICKUP ABOVE/BELOW GROUND SURFACE OF RISER PIPE _____
	BENTONITE CEMENT	THICKNESS OF SURFACE SEAL _____
		TYPE OF SURFACE SEAL _____
		[INDICATE ALL SEALS SHOWING DEPTH, THICKNESS AND TYPE]
		TYPE OF CASING _____
		INSIDE DIAMETER OF CASING _____
		ELEVATION/DEPTH OF BOTTOM OF CASING _____ L ₃ _____
		INSIDE DIAMETER OF RISER PIPE _____
		TYPE OF BACKFILL AROUND RISER _____
		DIAMETER OF BOREHOLE _____
		ELEVATION/DEPTH OF BOTTOM OF RISER _____ L ₁ _____
		TYPE OF POINT OR MANUFACTURER _____
		SCREEN GAUGE OR SIZE OF OPENINGS _____
		DIAMETER OF WELLPOINT _____
	TYPE OF BACKFILL AROUND POINT _____	
	ELEVATION/DEPTH OF BOTTOM OF POINT _____ L ₂ _____	
	ELEVATION/DEPTH OF BOTTOM OF BOREHOLE _____	

$$\left[\text{LENGTH OF CASING } L_3 \right] + \left[\text{LENGTH OF RISER PIPE } (L_1) \right] + \left[\text{LENGTH OF POINT } (L_2) \right] = \text{PAY LENGTH}$$

Health

SAFETY PLAN

for the

St. Louis Park Site
Drift Platteville Aquifer Northern Area Remedial Investigation
(Name of Site/Facility)

Located in

St. Louis Park, Minnesota
(City) (State)

Project Number: E317-600

Date: November 3, 1986

Prepared By: Kevin Powers Approved By: William M. Heagy
Project Manager

Date: 11/3/86

Date: 10/30/86

Health & Safety Manager

Date: _____

SITE DESCRIPTION

WORK SITE DESCRIPTION:

Monitoring well installation work is to be performed in various
public, commercial and residential areas within the city of St. Louis
Park.

COMPOUNDS OF CONCERN: Coal tar and creosote. Species present may
include phenols and Polynuclear Aromatic Hydrocarbons including, e.g.
Benzo (a) Pyrene, Benz (a) Anthracene or Quinoline. These compounds
are expected to be present at very low concentrations and not to pose
any direct exposure hazard to the work team.

PHYSICAL STATE OF COMPOUNDS: ² Dissolved or suspended in ground water
in trace quantities. ^{possibly} ⁱⁿ ^{the} ^{soil}

SCOPE OF WORK

PROPOSED DATE(S) OF FIELD ACTIVITY: To be determined

PERSONNEL REQUIREMENTS:

<u>NAME</u>	<u>RESPONSIBILITY</u>
<u>Bill Gregg</u>	<u>Coordinate Well Installation</u>
<u>Subcontractor</u>	<u>Perform Well Installation</u>
<u></u>	<u></u>
<u></u>	<u></u>
<u></u>	<u></u>
<u></u>	<u></u>
<u></u>	<u></u>

TRAINING REQUIREMENTS: Respirator training and respirator fit test.
Cold weather operations

PROPOSED ON-SITE ACTIVITIES: Ground water monitoring well
installation at six locations in the general vicinity of the site.
(no activities within the RTC site.)

SCOPE OF WORK: Six groundwater monitoring wells to be installed.

HAZARD EVALUATION

OPERATIONAL HAZARDS: Potential for extremely cold weather, if work
is performed during winter months. Also, physical hazards associated
with the operation of a drilling rig. — Entain the & mobile

OVERALL HAZARD:

~~LOW~~

~~MEDIUM~~

HIGH

PERSONAL PROTECTION REQUIREMENTS

RESPIRATORY PROTECTION REQUIREMENT: LEVEL D (modified)

SPECIFICATIONS: MSA Comfo II with Type GMC-H cartridges

MODIFICATIONS: Respiratory protection required if odors or dust become objectionable in the vicinity of borings or if VOC's are detected in the breathing zone by an HNU reading of 10 units or greater.

PROTECTIVE CLOTHING REQUIREMENT:

X WORK CLOTHES/COVERALLS (long sleeved)

 CHEMICAL PROTECTIVE CLOTHING. TYPE?

 WORK SHOES (STEEL TOE/SHANK)

X BOOTS. TYPE? Slush type

X GLOVES. TYPE? Nitrile - for handling tools and equipment

X HARD HAT

 FACE SHIELD

X SAFETY GLASSES/GOGGLES

MODIFICATIONS: Hard hat/safety glasses required within 25 foot radius of operating drill rig.

MONITORING REQUIREMENTS:

1) INSTRUMENT: HNU PI-101

MONITORING PROCEDURE: Monitor breathing zone in accordance with manufacturer's instructions during soil boring operations

2) INSTRUMENT:

MONITORING PROCEDURE



DECONTAMINATION PROCEDURES

EQUIPMENT/SOLVENTS/SOLUTIONS: Alconox, clean water

DECONTAMINATION PROCEDURE(S):

- 1) ITEM(S): Gloves, boots and other equipment as necessary

PROCEDURE: Wash with alconox detergent and rinse with
clean water

- 2) ITEM(S): _____

PROCEDURE: _____

DISPOSAL PROCEDURE: General refuse for all consumables.

SPECIAL INSTRUCTIONS: _____

EMERGENCY REFERENCE

AMBULANCE: 911

POLICE: 911

FIRE: 911

HOSPITAL: Methodist Hospital

Location: 6500 Excelsior Blvd.

St. Louis Park, Minnesota

932-5000

DIRECTIONS TO HOSPITAL:

South on Louisiana Avenue to Methodist Hospital

POISON CONTROL CENTER: 347-3141

NATIONAL RESPONSE CENTER: 1-800-424-8802

o CORPORATE:

NON-RESPONSIVE

o AGENCY REPRESENTATIVE: MPCA Douglas J. Robohm 612-296-7395
EPA Daniel J. Bickhell 312-886-7341

o CLIENT REPRESENTATIVE: **NON-RESPONSIVE**

NEAREST PHONE: Public phones in St. Louis Park

SECTION D

COMMUNITY RELATIONS PLAN

COMMUNITY RELATIONS PLAN

The Drift-Platteville Aquifer - Northern Area Remedial Investigation is to be completed in conjunction with the enactment of various other work tasks embodied in a proposed Consent Decree - Remedial Action Plan for Reilly Tar, Minnesota, N.P.L. Site. All community relations programs related to the enactment of the Consent Decree tasks shall be coordinated through the following agencies:

United States	Ms. Judy Beck United States Environmental Protection Agency (312) 353-1325
State of Minnesota	Ms. Susan Brustman Minnesota Pollution Control Agency (612) 296-7769
City of St. Louis Park	Ms. Sharon Klumpp City of St. Louis Park (612) 924-2523

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